

RF Exposure evaluation

According to 447498 D04 Interim General RF Exposure Guidance v01

$$P_{\rm th} \, ({\rm mW}) = ERP_{\rm 20 \, cm} \, ({\rm mW}) = \begin{cases} 2040 f & 0.3 \, {\rm GHz} \le f < 1.5 \, {\rm GHz} \\ \\ 3060 & 1.5 \, {\rm GHz} \le f \le 6 \, {\rm GHz} \end{cases} \tag{B.1}$$

$$P_{\text{th}} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^{x} & d \le 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \le 40 \text{ cm} \end{cases}$$
(B. 2)

where

$$x = -\log_{10}\left(\frac{60}{ERP_{20\,\mathrm{cm}}\sqrt{f}}\right)$$

and f is in GHz, d is the separation distance (cm), and ERP_{20cm} is per Formula (B.1). The example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

	Distance (mm)											
		5	10	15	20	25	30	35	40	45	50	
Frequency (MHz)	300	39	65	88	110	129	148	166	184	201	217	
	450	22	44	67	89	112	135	158	180	203	226	
	835	9	25	44	66	90	116	145	175	207	240	
	1900	3	12	26	44	66	92	122	157	195	236	
	2450	3	10	22	38	59	83	111	143	179	219	
	3600	2	8	18	32	49	71	96	125	158	195	
	5800	1	6	14	25	40	58	80	106	136	169	

 $ERP/EIRP = P_T + G_T - L_C$

ERP/EIRP is the equivalent (or effective) radiated power [in same units as P_T, typically dBW, dBm, or power spectral density (psd)], relative to either a dipole antenna (ERP) or an isotropic antenna (EIRP).

P_T is the transmitter output power, in dBW, dBm, or psd (power over a specified reference bandwidth).

 $G_{\text{\scriptsize T}}$ is the gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP).

L_C is the signal attenuation in the connecting cable between the transmitter and the antenna, in dB.

For BT EDR mode

Frequency (MHz)	Output power (dBm)	Ant gain(dBi)	EIRP (dBm)	EIRP (mw)	ERP (dBm)	ERP(mw)	Distance (cm)	P _{th} (mW)	
2402	0.67	-0.58	0.09	1.02	-2.06	0.62	0.5	2.8	

ERP = EIRP - 2.15 dB

WORSE CASE

1.02mW<2.8mW

Remark:

Then SAR evaluation is not required